Remote Sensing Applications Division (RSAD)

CDR Program Office

Weekly Report for Jun 29, 2012
Ed Kerns, Chief

CCB Items

• CR-0007 UAT_3Layer_MW_UAH (Version change from v5.4 to v6.0)
   Anticipated changes:
   1) The process by which diurnal drifting is quantified
   2) The process by which the instrument drift is quantified using target emissivity variations related to target temperature variations
   3) The process by which the residual intersatellite trend differences are accounted for and removed.
   4) The new version will be delivered in netCDF

• CR-0008 Sea Ice Concentration (Add monthly product)
   Changes included:
   1) Added monthly product
   2) Updated documentation package (MM, Flow Diagram, C-ATBD)
   3) Updated source code package (code, README, Header doc)

• Other housekeeping
   1) PM sign Sea ice concentration checklist from ORR
   2) PM approve changes to generic ORR checklist
   3) Put revised ORR checklist in Library

CDR Program Office
FY12 Climate Data Records

Weekly Report – Jun 29, 2012

(1) Mean Layer Temperatures – Univ of Alabama Huntsville (UAH)
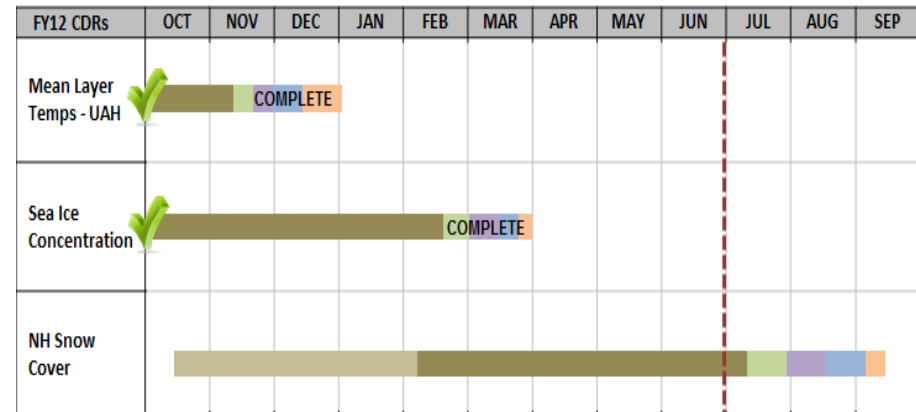- Completed – Nov 17

(2) Sea Ice Concentration
- Completed – Mar 28

● **(3) Northern Hemisphere Snow Cover**
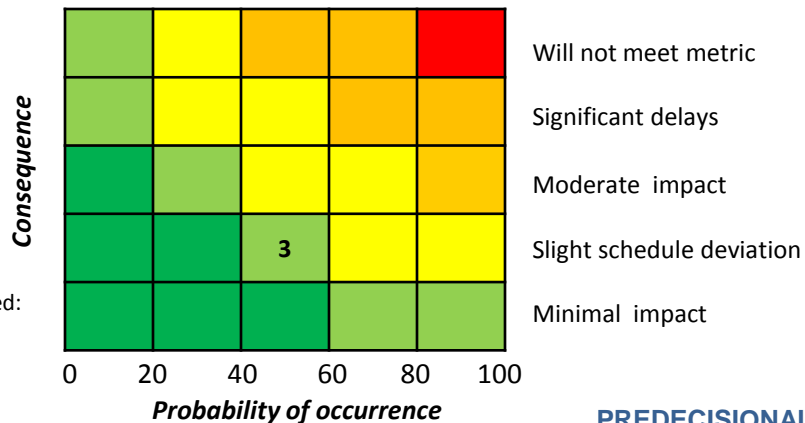- Received sample netCDF data, expecting second draft of C-ATBD soon

● No change   ↑ Increasing Risk   ↓ Decreasing Risk   *Candidate CDRs
*

R2O Schedule

FY12 CDRs	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP
Mean Layer Temps - UAH	✔	COMPLETE										
Sea Ice Concentration	✔					COMPLETE						
NH Snow Cover												

R2O PHASE:	ASSESSMENT	SUBMISSION PREP	TRANSFER	VERIFY	ARCHIVE	ACCESS

Risk Matrix

Completed: **1,2**

Consequence (vertical axis):
- Will not meet metric
- Significant delays
- Moderate impact
- Slight schedule deviation
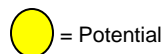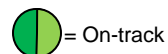- Minimal impact

Probability of occurrence: 0 20 40 60 80 100

Risk - Mitigation

- **Snow Cover PI has a lot to accomplish by the end of the FY**
  - **Gave PI a detailed schedule and he is working to stay on track**
  - **Continue to transition the MLT-RSS CDR as a back-up**

- **No formal QA on product, software, and documentation**
  - **ORR helps alleviate some of the risks**
  - **Will get reviews/input from in house experts as needed**
  - **Need to formally document the current QA steps being done**

= On-track   = Potential management action required   = Management attention required

FY12 TCDR - NH Snow Cover

CDR Product: TCDR – NH Snow Cover, 1966-2012 (10 GB)
GEOSS Societal Benefit: Climate, Water, Ecosystems, Agriculture, Energy

Project Status

- **Held telecon on Tues.**
- **Received first sample of netCDF dataset**
  - IPT will review and send back comments
- PI will not be at summer conference and staff is on vacation
- IPT sent comments on C-ATBD – expect next draft by **6/29**
- PI sent updated Readme – still needs netCDF conversion piece
- SA draft available on google docs – **reviewed by all**

SOW developed for:
1) Monthly updates for one year
2) QC tools and training

Next Action/Milestone

- Deliver sample of netCDF data (6/20) - done
- Draft SA (6/20) – done
- Send comments back on netCDF file (6/29)
- Update C-ATBD (6/29)

(G) **Project Risks**

- Funding (SDS 2008)
  - SOW in development to get additional funds to PI
- Input data is made with a person in the loop (daily IMS data)
  - Metadata and documentation will detail how the product
    is created and identify its strengths/weaknesses

ID	Task Name	Status	Start	Stop	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
					FY12 Q1			FY12 Q2			FY12 Q3			FY12 Q4		
1	Initial Assessment	100	10/17/2011	2/9/2012												
2	Transfer Prep	50	2/6/2012	8/7/2012												
2a	Comment Source Code	25	2/6/2012	5/22/2012												
2b	Create Docs (CATBD, Flow Chart, MM, Readme)	75	3/19/2012	6/11/2012												
2c	Create NetCDF Dataset	50	5/30/2012	8/7/2012												
3	Tranfer Code, Docs, and Data	10	4/18/2012	8/16/2012												
4	Verify Code, Docs, and Data	10	4/19/2012	8/23/2012												
5	Archive Code, Docs, and Data	0	5/31/2012	8/31/2012												
6	Provide Access to Code, Docs, and Data	0	6/1/2012	9/10/2012												

PREDECISIONAL DRAFT INFORMATION

PI: Robinson (Rutgers Univ, SDS 2008)   RSAD TM: Young

Backup FY12 CDR - Mean Layer Temperature - RSS

CDR Product: TCDR – Atmospheric Temperature at Four Layers, 1978-2011 (140 MB)
GEOSS Societal Benefit: Energy, Climate, Ecosystems

Project Status

- PI completed sample netCDF files for all four layers
  - PI's focus will now be on drafting the C-ATBD
- Wentz will represent RSS at the PI conference
- Draft SA available on Google docs for PI and IPT to review
- About 25% of the code has been documented
  - PI will adjust copyright statement to maintain ©, but grant CDRP unrestricted license

SOW developed for:
1) Monthly updates for one year
2) QC tools and training

Next Action/Milestone

- Draft C-ATBD (4/30)
- Updated netCDF file sample (6/1) - done
- Review all four sample files for metadata (7/5)

(G)

Project Risks

- Funding (SDS 2008)
  - SOW in development to get additional funds to PI

ID	Task Name	Status	Start	Stop	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
					FY12 Q1			FY12 Q2			FY12 Q3			FY12 Q4		
1	Initial Assessment	100	10/17/2011	2/3/2012	███	███	███	███								
2	Transfer Prep	50	2/6/2012	7/24/2012					███	███	███	███	███			
2a	Comment Source Code	25	2/6/2012	5/1/2012					░░░	░░░	░░░					
2b	Create Docs (CATBD, Flow Chart, MM, Readme)	25	3/19/2012	5/22/2012						░░░	░░░	░░░				
2c	Create NetCDF Dataset	75	5/3/2012	7/24/2012								░░░	░░░	░░░		
3	Tranfer Code, Docs, and Data	15	4/18/2012	7/26/2012							███	███	███			
4	Verify Code, Docs, and Data	15	4/19/2012	8/9/2012							███	███	███	███		
5	Archive Code, Docs, and Data	0	5/31/2012	8/17/2012								███	███	███		
6	Provide Access to Code, Docs, and Data	0	6/1/2012	9/3/2012									███	███	███	

PI: Mears (RSS, SDS 2008)   RSAD TM: Dongsoo Kim

Backup FY12 CDR - Vegetation Bundle

CDR Product: TCDR – Vegetation Bundle, 1981-2012 (2.5 TB)
GEOSS Societal Benefit: Agriculture, Ecosystems, Climate, Biodiversity

Project Status

- PI sent sample netCDF data
  - **Collected feedback for PI on google doc**
- PI sent an updated flow diagram
  - much better than first one, still needs some tweaks

- Two CDRs in transition:
  - Deliver Surface Reflectance and NDVI in FY12
  - Postpone LAI and FPAR until more mature (FY13)

Next Action/Milestone

- Initial Assessment (3/22) – done
- Revised Flow Diagram (4/20) - done
- Samples of documented source code (4/27)
- Draft C-ATBD (6/1)

(Y) Project Risks

- Lots of work to be completed, lowest priority of the CDRs
  - sent PI a detailed task schedule, will push PI to stay on track
- SME out until July 6

ID	Task Name	Status	Start	Stop	FY12 Q1			FY12 Q2			FY12 Q3			FY12 Q4		
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Initial Assessment	100	10/17/2011	4/6/2012												
2	Transfer Prep	25	3/1/2012	8/21/2012												
2a	Comment Source Code	10	3/1/2012	6/1/2012												
2b	Create Docs (CATBD, Flow Chart, MM, Readme)	25	3/15/2012	6/30/2012												
2c	Create NetCDF Dataset	35	4/30/2012	8/21/2012												
3	Tranfer Code, Docs, and Data	10	5/15/2012	8/21/2012												
4	Verify Code, Docs, and Data	10	5/15/2012	8/30/2012												
5	Archive Code, Docs, and Data	0	6/7/2012	9/7/2012												
6	Provide Access to Code, Docs, and Data	0	6/15/2012	9/21/2012												

     PI: Vermote (U of Md, CDR Grant 2009)   **RSAD TM: Nelson**

FY12 TCDR - Sea Ice

CDR Product: TCDR - Sea ice concentration, 1979-2007 (20 GB)
GEOSS Societal Benefit: Climate, Water, Ecosystems, Agriculture

Project Status

- Opened change request on sea ice CDR to add monthly product
- All monthly data has been archived
- PI updated the C-ATBD, Flow Diagram, README, and code
  - **Sec Review complete – Code Package archived**
  - **All docs updated in library and put in archive**
  - **All docs, data, and code updated on web page**

SOW in work for:
1) Adding F17 data to daily and monthly
2) Extending POR from 2008 – current
3) Quarterly updates for one year
4) QC tools and training
5) Quarterly access reports

Next Action / Milestone

- Release daily CDR product (3/28) - done
- Create new monthly product (6/8)
- Archive new data and documentation updates (6/22)
- Add monthly product to web (6/29)

(G)

Project Risks

- No Funding to separate the CDR (modularize production code)

ID	Task Name	Status	Start	Stop	FY12 Q2			FY11 Q3			FY12 Q4		
					Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Initial Assessment	100	12/7/2010	1/7/2011									
2	Transfer Prep	100	3/1/2012	6/15/2012				Monthly					
2a	Comment Source Code	100	6/1/2012	6/15/2012									
2b	Create Docs (CATBD, Flow Chart, MM, Readme)	100	5/15/2012	6/15/2012									
2c	Convert data from binary to NetCDF	100	3/1/2012	6/15/2012									
3	Tranfer Code, Docs, and Data	100	5/1/2012	6/8/2012									
4	Verify Code, Docs, and Data	100	5/8/2012	6/15/2012									
5	Archive Code, Docs, and Data	100	5/15/2012	6/22/2012									
6	Provide Access to Code, Docs, and Data	100	5/21/2012	6/29/2012									

Complete

7/2/2012

PI: Meier (NSIDC, SDS 2007)   RSAD Transition Manager: Peng
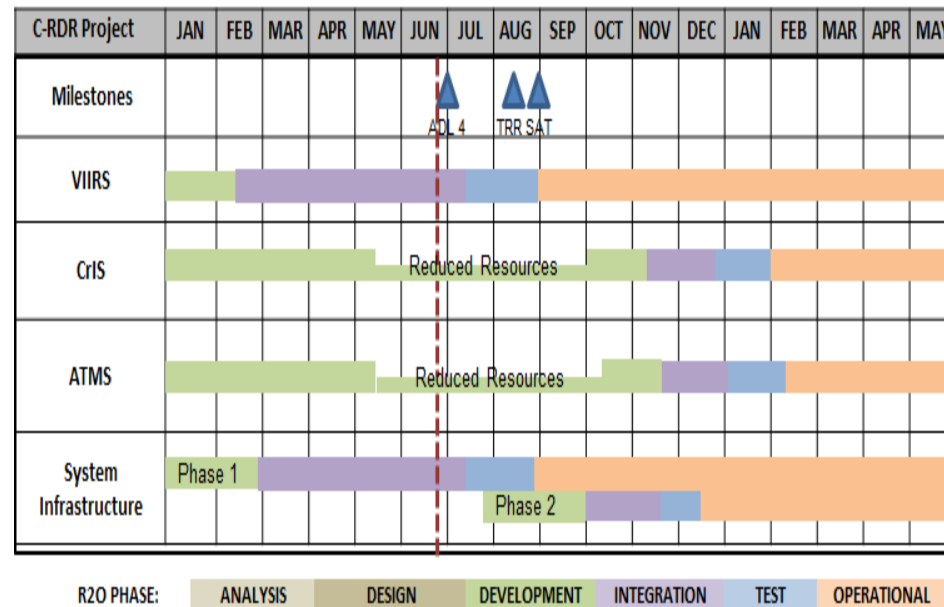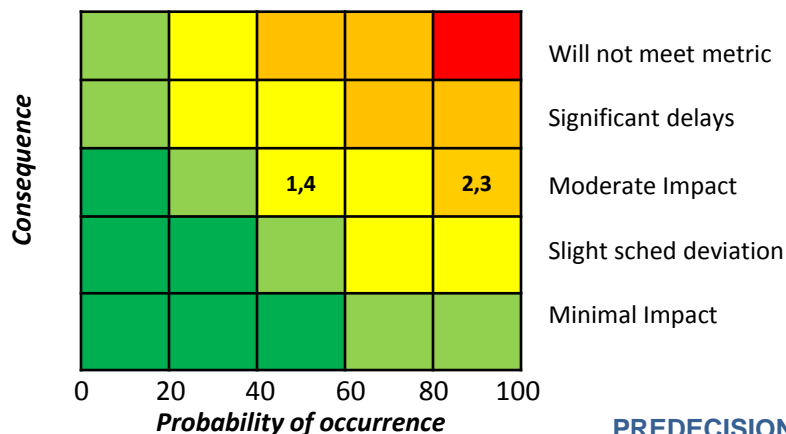
CDR Program Office
NPP/JPSS Climate Raw Data Records (C-RDRs) Project

Weekly Report – June 28, 2012

① **VIIRS**
- Integrating the with the system infrastructure.

② **CrIS**
- Developing code to write the CrIS C-RDR.

③ **ATMS**
- Developing code to write the ATMS C-RDR.

④ **System Infrastructure**
- Integrating with the VIIRS C-RDR.

• Successfully ran VIIRS data through the C-RDR system infrastructure and C-RDR packer.

•**Setting up data flow from CLASS, SIPGenSYS, to C-RDR.**

C-RDR Project	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
Milestones						ADL 4		TRR SAT									
VIIRS																	
CrIS				Reduced Resources													
ATMS				Reduced Resources													
System Infrastructure	Phase 1						Phase 2										

R2O PHASE: ANALYSIS | DESIGN | DEVELOPMENT | INTEGRATION | TEST | OPERATIONAL

Risk Matrix

Consequence (y-axis): Will not meet metric / Significant delays / Moderate Impact / Slight sched deviation / Minimal Impact

Probability of occurrence (x-axis): 0 20 40 60 80 100

Cells: 1,4 (Moderate Impact, ~40-60); 2,3 (Moderate Impact, ~80)
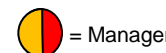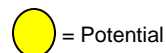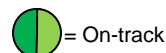
Risk and Mitigation

VIIRS, CrIS, ATMS –
•Resources are being reduced. Delivery of CrIS and ATMS will be delayed.
•Operational software is under maintenance, updated versions may affect C-RDR ported version.

System Infrastructure –
Reliability of NPP RDRs from CLASS. Need to test ingest of RDRs from CLASS and develop an automated mechanism for re-requesting data.
•Ability of CLASS to handle the frequency and volume of NPP data. CLASS has been successful during system tests.
• Archive in CLASS is currently cost prohibitive. Need to identify alternate archive. Plan to store C-RDRs on HPSS until migration to CLASS.

PREDECISIONAL DRAFT INFORMATION

7/2/2012

= On-track   = Potential management action required   = Management attention required

8

Visible Infrared Imaging Radiometer Suite (VIIRS)

C-RDR Product: Raw sensor measurements with usage and provenance metadata in easily accessible netCDF4 format
GEOSS Societal Benefit: Climate, Water, Ecosystems, Agriculture, Biodiversity, Energy

Project Status

- **Writing the VIIRS C-RDR unpacker (used for testing)**
- **Validating delieverd data structures with NASA docs.**
- Fixing minor errors identified during integration and testing.
- Successfully ran VIIRS data from CLASS through C-RDR packer.
- Completed dynamic C-RDR file-level metadata code.
- Updated CrdrPacker software for Crdr file naming.
- Modified the supporting data metadata.
- Implemented and verified netCDF compression.
- Verifying (IDPS) documentation and code changes with DEWG.
- Wrote a test application to dump data from RDR APIDs.
- Completed writing science and spacecraft diary data.
- Completed test of code that writes VIIRS Support Data.

Next Action / Milestone

- Integrating the VIIRS C-RDR software and the system infrastructure.

(Y)

Project Risks

- Complexity of the NPP/JPSS RDRs and operational software
- Operational software is under maintenance, updated versions may affect C-RDR ported version

Project Schedule

ID	Task Name	Status	Start	Stop	Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Analysis	Completed	10/23/2009	5/4/2010												
2	Design	Completed	5/6/2010	1/5/2011												
3	Development	95.00%	1/6/2011	1/30/2012	███	███	███	███								
3a	Develop VIIRS processing component	95.00%	1/6/2011	1/12/2012	███	███	███									
3b	Test VIIRS processing component	95.00%	12/28/2011	1/30/2012				███								
4	Integration	10.00%	1/31/2012	3/26/2012						███						
5	Test		3/23/2012	4/12/2012							███					
5a	Dry Runs		3/23/2012	4/11/2012							███					
5b	System Acceptance Test		4/12/2012	4/12/2012							███					
6	Operational		4/13/2012											███	███	███

Being Reworked

FY12 Q1 / FY12 Q2 / FY12 Q3 / FY12 Q4

7/2/2012

POC: Biard

C-RDR System Infrastructure

C-RDR Product: Infrastructure to automate the production of the C-RDRs.
GEOSS Societal Benefit: Climate, Water, Ecosystems, Agriculture, Biodiversity, Energy

Project Status

- **Validating data structures against updated NASA docs.**
- **Setting up the automated data flow from CLASS in the integration environment.**
- Created initial VIIRS C-RDR from CLASS mission data in integration environment.
- Development environment is set up on the CICS network.
- Working on managing queues and processing jobs.
- Locating, validating, and statusing files for processing.
- Developing code for ingest detection and processing.
- C-RDR needs to handle CLASS manifests. SIPGenSys will not.
- Completed NPP 14 day Ground Operations Exercise (GOE).
- Completed throughput testing for SIPGenSys.
- Creating database tables and access procedures for config files.
- Setting up configuration files and software for the ingest test.

Next Action / Milestone
- Integrating and testing the system infrastructure.

(Y)

Project Risks

- Need to develop an automated re-request mechanism for CLASS.

Project Schedule

ID	Task Name	Status	Start	Stop	FY12 Q1			FY12 Q2			FY12 Q3			FY12 Q4		
					Oct	Nov	Dec	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep
1	Analysis	Completed	9/29/2010	4/22/2011												
2	Design	90.00%	4/25/2011	7/8/2011												
3	Development	80.00%	5/31/2011	2/28/2012												
3a	Develop infrastructure	90.00%	5/31/2011	2/14/2012												
3b	Test infrastructure	70.00%	9/27/2011	2/28/2012												
4	Integration (Phase 2)	5.00%	1/31/2012	3/26/2012												
5	Test		3/23/2012	4/12/2012												
5a	Dry Runs		3/23/2012	4/11/2012												
5b	System Acceptance Test		4/12/2012	4/12/2012												
6	Operational		4/13/2012													

Being Reworked

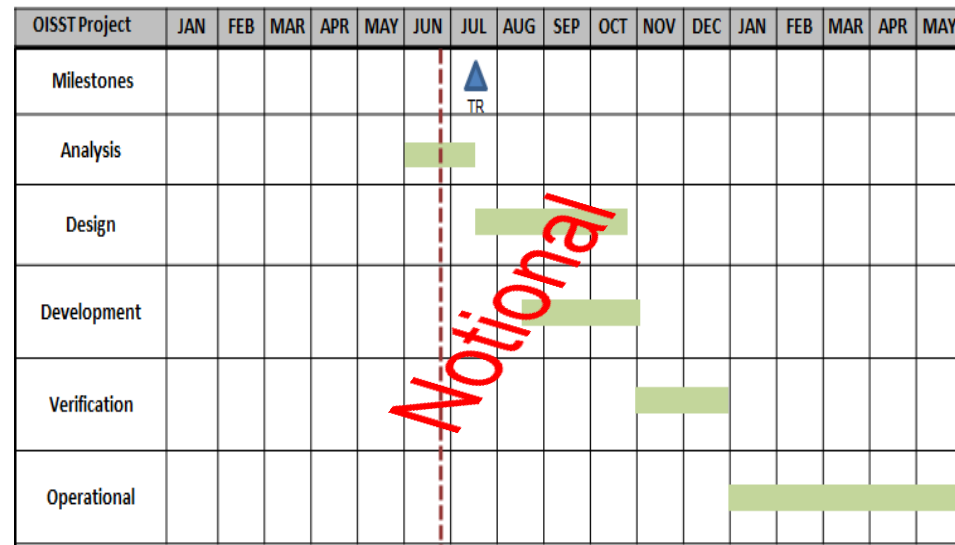**PREDECISIONAL DRAFT INFORMATION**

POC: Copley

CDR Program Office
OISST Research to Operations Project

Weekly Report – June 28, 2012

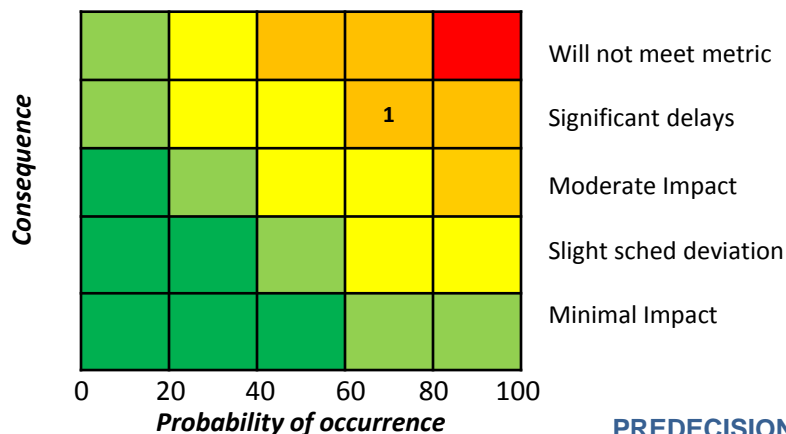**①** **OISST – Optimum Interpolated Sea Surface Temperature**

- Initial technical assessment completed. Code requires re-writing for structure and coding issues.
- **Establishing a common baseline and environment for code development.**
- **Developing tests to verify code execution.**
- **Developing plan for re-writing/refactoring.**
- **Preparing for Technology Review.**

OISST Project	JAN	FEB	MAR	APR	MAY	JUN	JUL	AUG	SEP	OCT	NOV	DEC	JAN	FEB	MAR	APR	MAY
Milestones							TR										
Analysis						�											
Design								In									
Development										In							
Verification											In						
Operational													In				

Notional

Key:
TR   Technical Review

Risk Matrix

Consequence (y-axis)
- Will not meet metric
- Significant delays — **1**
- Moderate Impact
- Slight sched deviation
- Minimal Impact

Probability of occurrence (x-axis): 0, 20, 40, 60, 80, 100

Risk and Mitigation

- **Staff available for transition to operations:**
  - **Ensure sufficient resources and funding.**
- Code rewritten for reliability and sustainability must produce equivalent results to the existing/tested code.
  - Implement a refactoring methodology that requires timely verification using existing code.
- Operational environment not fully defined.
  - Implement automated testing.
  - Develop monitoring for process execution and product quality
  - Implement configuration management.

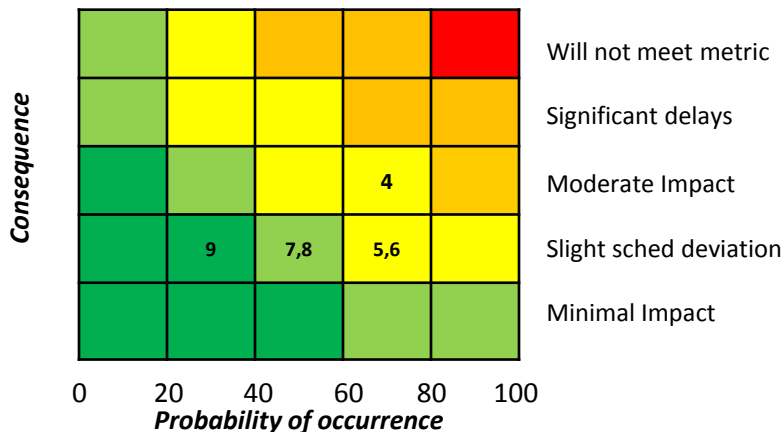7/2/2012

CDR Program Office
IOC to FOC using PATMOS-X as prototype

Weekly Report – June 29, 2012

(4) 4. Build and Test Infrastructure (was May 26)
- CICS wireless and internet connection to GST cloud working well.
- Bugzilla operational installation on GST cloud in progress. **R8**

(5) 5&6. Familiarization Runs and Diagnostics (July 7)
- Produced subroutine call metrics with limited set of user options.
- Measurements with complete option set in progress.
- Troubleshooting segmentation fault in undocumented L2->L2b component. **R8**

(7) 7&8. Develop & Run Algorithm Test (August 11)
- Automated test wrapper under development on GST cloud.
- Still awaiting reply on best test epochs, other information from PI. **R13**

(9) 9. Derive and Document Architecture (September 8)
- High level flow L1b(orbit,pixel) -> L2(orbit,pixel) -> L2b(grid) now understood
- Derivation of control flow in progress.

FY 12 3.1 & 3.2	Fe	Mar	Apr	May	Jun	Jul	Aug	Sep
1 Develop White Paper					✔			
3 Establish Dev Environment			✔					
4 Build and Test Infrastructure								
5,6 Familiarization & Diagnostics								
7,8 Develop & Run Algorithm Test								
9 Derive / Document Architecture								
10 Identify Probs & Opportunities								
11 Prioritize Probs & Opportunities								

Risk Matrix

Consequence (vertical axis, top to bottom):
- Will not meet metric
- Significant delays
- Moderate Impact — 4
- Slight sched deviation — 9, 7,8, 5,6
- Minimal Impact

Probability of occurrence (horizontal axis): 0 20 40 60 80 100

Top Risks and Mitigation

R3. Ongoing parallel development by PI
- Use good differencing tool. Incorporate only those changes that have a good justification from the CDR perspective.

R8. Personnel on task at maximum work load
- With recent budget cuts to the CDRP the personnel still engaged on this task are at maximum work level. More budget challenges could result in the loss of the remaining key personnel and jeopardize the completion of this task.

R10. No sustainable commitment for independent Quality Assurance
- Short term financial resources available. GST has potential consultant to assist with development of CDR Program Quality Assurance Plan.

R13. PI Availability ⬆
- Engage PI team at annual conference.

7/2/2012